3Com®

SuperStack® II
Remote Access System 1500

Quick Setup Guide
Release 2.0

CONTENTS

ABOUT THIS GUIDE

This guide describes how to install and configure the SuperStack® II Remote Access System 1500. It covers configuration information for setting up the following four basic services through the browser-based Web Configuration Interface.

- Dial In Access
- Shared ISP Access
- LAN-to-LAN Routing
- Individual Dial Out Access

For configuring additional features, refer to the System Management Guide.

The table below contains information on tasks you will perform to install and configure the RAS 1500. Please read and follow this information.

Task	What is Performed	What is Required
1	Order ISDN line provisioning from the Telephone Company	Switch type and switch parameters
2	Obtain MAC Address of RAS 1500	Locate sticker on back of RAS 1500 containing MAC Address. Write down number here: _____
3	Ensure all Router Units are running Release 2.0	Refer to the Firmware Upgrade document and follow procedures for upgrading from Release 1.0 or 1.5 to 2.0.

Task	What is Performed	What is Required
4	Obtain the following information: IP address to assign to the RAS 1500 IP Network Mask Community string (SNMP password) Default Gateway Address Default Gateway Metric DNS Server Address DNS Server Domain Name IP Addresses to assign to incoming calls User names and passwords (if using local authentication)	See your system administrator. Record information in the spaces provided here:
5	Install the RAS 1500 Hardware	See Chapter 1.
6	Configure an IP Address for the RAS 1500	**PC Users running Microsoft Windows 95, 98 or NT:** Insert the CD ROM. See Chapter 2. **UNIX Users:** UNIX systems initially require the IP address and subnet mask setup using the CLI. CD does not apply. See Chapter 2
7	Configure features of the RAS 1500	Use the Setup Wizard in the Web Configuration Interface. See Chapter 2.

The RAS 1500 Release Notes for Release 2.0 shipped with this product may contain more recent hardware installation and software configuration information. Therefore, if the information in the Release Notes differs from the information in this guide, follow the instructions in the release notes.

Finding Specific Information

This table shows the location of specific RAS 1500 information.

If you are looking for this information	Turn to
Latest changes to the documentation	Release Notes
Installing the RAS 1500 Hardware	Chapter 1
Configuring the RAS 1500 Software	Chapter 2
Description of LEDs	Appendix A
Configuration Assistance	Appendix B
Technical Specifications	Appendix C
Warranty Information	Appendix D
Technical Support	Appendix E

Conventions

This table lists conventions that are used throughout this guide.

Table 1   Notice Icons

Icon	Notice Type	Description
	Information note	Important features or instructions
	Caution	Information to alert you to potential damage to a program, system, or device
	Warning	Information to alert you to potential personal injury

Related Product Documentation and Information

The SuperStack® II Remote Access System 1500 documentation set includes the following documents:

■ *SuperStack® II Remote Access System 1500 Release Notes*

These notes provide information about the system software release, including new features and bug fixes. It also provides information about any changes to the RAS 1500 system documentation. Release notes are enclosed in the RAS 1500 package and are available at http://www.3com.com/ras1500.

■ *SuperStack® II Remote System 1500 System Management Guide*

This guide describes how to configure your RAS 1500. It is located on the RAS 1500 Resource CD-ROM in .pdf format and at the 3Com Web Site http://www.3com.com/ras1500.

- *Web Configuration Online Help*

  This online help file describes how to use the Web Configuration Interface to configure your RAS 1500. It can be accessed by clicking Help from the banner tool bar located in all screens of the browser-based Web Configuration Interface.

- *SuperStack® II Remote Access System 1500 System Reference Guide*

  Describes how to configure your RAS 1500 system using the Command Line Interface (CLI). It is located on the RAS 1500 Resource CD-ROM in .pdf format and at the 3Com Web Site http://www.3com.com/ras1500.

- *SuperStack® II Remote Access System 1500 I/O Module Installation Guide*

  Describes how to install an I/O module in a Router Unit or Port Expansion Unit. It is located on the RAS 1500 Resource CD-ROM in .pdf format and at the 3Com Web Site http://www.3com.com/ras1500

- *SuperStack® II Remote Access System 1500 Firmware Upgrade*

  Describes how to upgrade the RAS 1500 from Software Release 1.0 or 1.5 to 2.0. It is enclosed in the RAS 1500 package and is available at http://www.3com.com/ras1500.

You can find additional SuperStack® II RAS 1500 product information on the 3Com Web Site:

http://www.3Com.com/ras1500

Contacting 3Com   Use this chart as a reference when you need to contact 3Com.

Contacting 3Com	
3Com Corp. - 5400 Bayfront Plaza - P.O. Box 58145 - Santa Clara, CA - 95052-8145	
Internet	http://support.3Com.com

For a complete listing of support and contact numbers, refer to Appendix E, "Technical Support."

1

INSTALLING THE RAS 1500 HARDWARE

This chapter contains the following information:

- Before you Begin
- Installing the RAS 1500 System
- Grounding the RAS 1500
- I/O Module
- Front Panel Description
- Connecting the Cables
- Powering the RAS 1500 On or Off
- Connecting the STACKNET Cables

Before you Begin

Before you begin installation:

- Confirm you have the required equipment
- Check that your RAS 1500 package is complete (see page 1-2)

Required Equipment

This section discusses the hardware and software requirements for configuring the RAS 1500.

Hardware Requirements

A Pentium PC or UNIX workstation with the following hardware requirements:

- 32 MB RAM
- 40 MB free Hard Drive storage space
- Mouse
- TCP/IP configured

Software Requirements

The Web Configuration Interface, the browser-based tool for setting up features of this release, requires Netscape Navigator 4.0 or Internet Explorer 4.0 running on Windows 95, 98, or NT 4.0 (with the latest service pack from Microsoft), or UNIX.

ℹ️ *The Web Configuration Interface runs from the Web browser after the IP address for the RAS 1500 has been configured. If you are running Windows 95, 98, or NT, the IP address is set using the IP Wizard that you will access from the splash screen on the CD. If you are using a UNIX-based platform, the IP address has to be set through the console monitor.*

You Should Have Received

You should have received the following items with your Router Unit:

- SuperStack® II RAS 1500 Router Unit
- AC power cord
- Null modem cable for console management
- Ethernet cable
- Cable-guide mounting brackets
- Flat-head mounting bracket screws
- Rubber feet
- Resource CD-ROM
- User documentation:
    - RAS 1500 Release 2.0 Quick Setup Guide
    - RAS 1500 Release 2.0 Release Notes
    - RAS 1500 Release 2.0 Firmware Upgrade
- Dual-end compact screwdriver

If your RAS 1500 box does not contain all items listed above, contact 3Com Technical Support in your country. See Appendix D, "Warranty Information," for information.

Optional Components

You can purchase the following items separately:

- WAN cables: V.35, X.21
- I/O Modules: 4-port V.34 modem module and cables, 2-port ISDN BRI module and cables

■ Port Expansion Unit — Each router unit supports up to two Port Expansion Units.

■ Primary Rate Access Unit — Each router unit supports a single Primary Rate Access unit.

| **Installing the RAS 1500 System** | The RAS 1500 system consists of a Router Unit (RM), Port Expansion Unit (PEM), and Primary Rate Access Unit (PAU). You can install the RAS 1500 either as part of a stack of equipment or in a standard 19-inch rack. |

*RAS 1500 installations are limited to a Router Unit and two Port Expansion Units **or** a Router Unit and a Primary Rate Access Unit. When adding a Port Expansion Unit or Primary Rate Access Unit, make sure the router module operational code is upgraded to match the appropriate version.*

*WARNING**: To avoid personal injury or damage to the unit, make sure the stack or rack into which you install RAS 1500 is placed on a stable surface.*

| **Installing the RAS 1500 System in a Stack** | Use the following steps to install a Router Unit, Port Expansion Unit, or Primary Rate Access Unit in a stack: |

1 Peel each rubber foot from the adhesive sheet and attach it to the bottom of the unit. Use the circular marks on the bottom of the unit as guides.

2 Place the unit into an existing stack of equipment, or on a smooth, level surface.

| **Installing the RAS 1500 System in a Rack** | Use the following steps to install a Router Unit, Port Expansion Unit, or Primary Rate Access Unit into a standard 19-inch rack: |

For rack installations, do not attach the rubber feet to the unit.

1 Fully extend the cable guides on the enclosed mounting brackets.

2 Fasten the mounting brackets to both sides of the unit using the enclosed screws and a Phillips-head screwdriver.
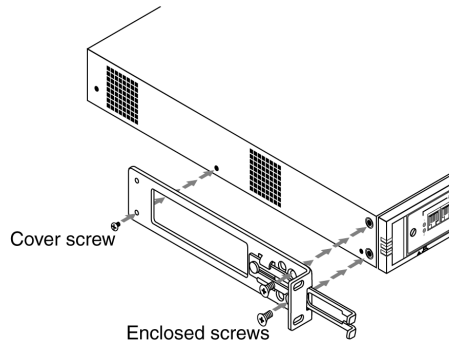
Figure 1-1   Fastening the Mounting Brackets to the Route Unit

3 Mount the units in the rack.

> *RAS 1500 units can be mounted in any order, but for ease of management, we recommend you install RAS 1500 Router Unit on the bottom of the stack or rack.*

Rack Installation Guidelines

Follow these guidelines when you install RAS 1500 in a rack.

- **Operating Ambient Temperature** — If the RAS 1500 is installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient temperature. Therefore, we recommend that you install the equipment in an environment compatible with the RAS 1500's maximum rated ambient temperature. Refer to Appendix C, "Technical Specifications," for details.

- **Air Flow** — Install the RAS 1500 so that the rack has enough air flow for safe operation.

> *If the RAS 1500 fails while in a rack, you might have to allow more spacing between the other equipment in the rack to provide more air flow.*

- **Mechanical Loading** — To avoid a hazardous condition, mount the equipment in the rack evenly and place the rack on a stable surface.

- **Circuit Overloading** — Make sure the RAS 1500 is properly connected to the power supply circuit. This circuit should include overcurrent protection and proper power supply wiring.

- **Grounding** — Maintain reliable grounding of the rack-mounted RAS 1500. Do not connect the RAS 1500 to a power supply connection other than the branch circuit.

Grounding the RAS 1500

Stack installation of a Router Unit and at least one Port Expansion Unit, or a Primary Rate Access Unit requires proper grounding. Grounding straps are enclosed in the accessories kit. Install them as follows:

1 Remove one cover screw on Router Unit and the Port Expansion Unit or Primary Rate Access Unit.

2 Install a ground strap between the Router Unit cover and the Port Expansion Unit/Primary Rate Access Unit cover and reinstall the screws as shown.
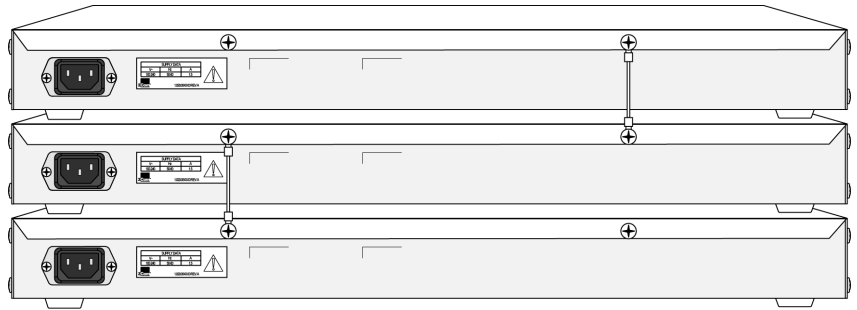
Figure 1-2 Grounding the RAS 1500 (Router Unit and two Port Expansion Units)

I/O Module

Refer to the *I/O Installation Guide* that is shipped with the I/O modules for installation instructions.

WARNING: The I/O modules are not hot-pluggable. You must have the power cord disconnected when installing I/O modules in the Router Unit or Port Expansion Unit.

Front Panel Description

The following figures describe the RAS 1500 front panels.
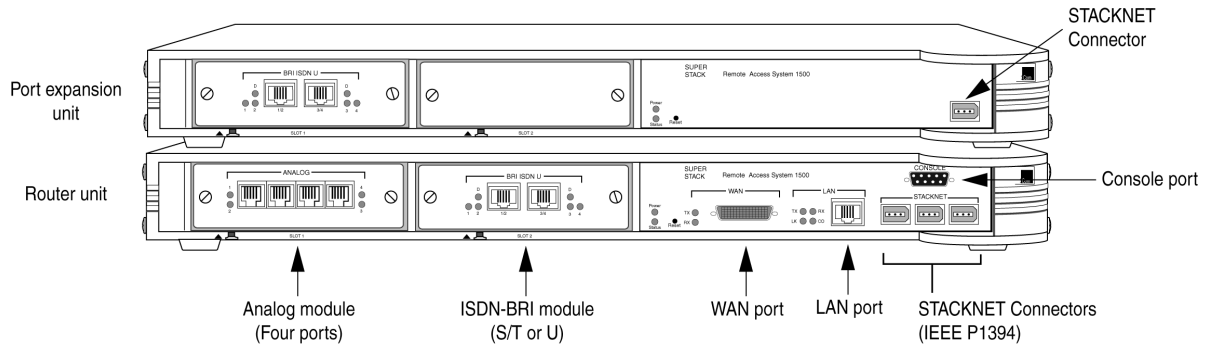
Figure 1-3 RAS 1500 (Router Unit and Port Expansion Unit) Front Panel

Table 1-1 Front Panel Features

Description	Function
Analog I/O module	Connect analog telephone lines.
ISDN -BRI I/O module (S/T or U)	Connect ISDN-BRI telephone lines.
WAN port	Connect to the WAN through this port. Automatic cable detection defines interface type.
LAN port	Connect to the LAN through this port. Automatic cable detection defines interface type.
Console port	Connect a serial cable to a terminal from this port to access the unit's command line interface (CLI). The port defaults to 38.4 Kbps.
STACKNET (IEEE P1394 connectors)	Connect supplied STACKNET cable from these ports to RAS 1500 Expansion Unit.
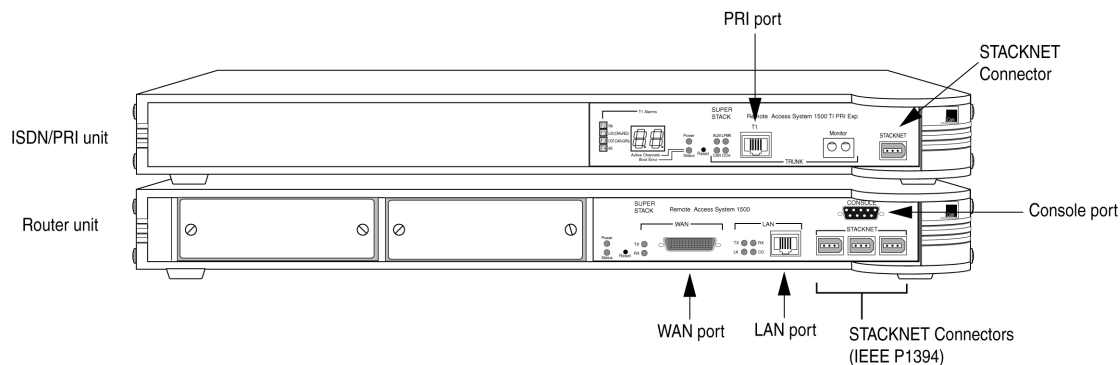
Figure 1-4 RAS 1500 (Router Unit and Primary Rate Access Unit) Front Panel

Table 1-2 Front Panel Features

Description	Function
PRI port	Connect PRI-ISDN telephone line.
WAN port	Connect to the WAN through this port. Automatic cable detection defines interface type.
LAN port	Connect to the LAN through this port. Automatic cable detection defines interface type.
Console port	Connect a serial cable to a terminal from this port to access the unit's Command Line Interface (CLI). The port defaults to 38.4 Kbps.
STACKNET (IEEE P1394 connectors)	Connect supplied STACKNET cable from these ports to RAS 1500 Primary Rate Access Unit.

Connecting the Cables

Connect the telco and network cables to the RAS 1500 Router Unit and Port Expansion Unit or Primary Rate Access Unit.

Router Unit and Port Expansion Unit Cabling

Connect the following cables to the Router Unit and Port Expansion Unit as shown:

RAS 1500 Router and Port Expansion Units may be configured with a combination of BRI-ISDN or Analog I/O cards. The number and type of telco connections depends on the configuration.

- BRI-ISDN
- Analog
- LAN
- WAN
- Console
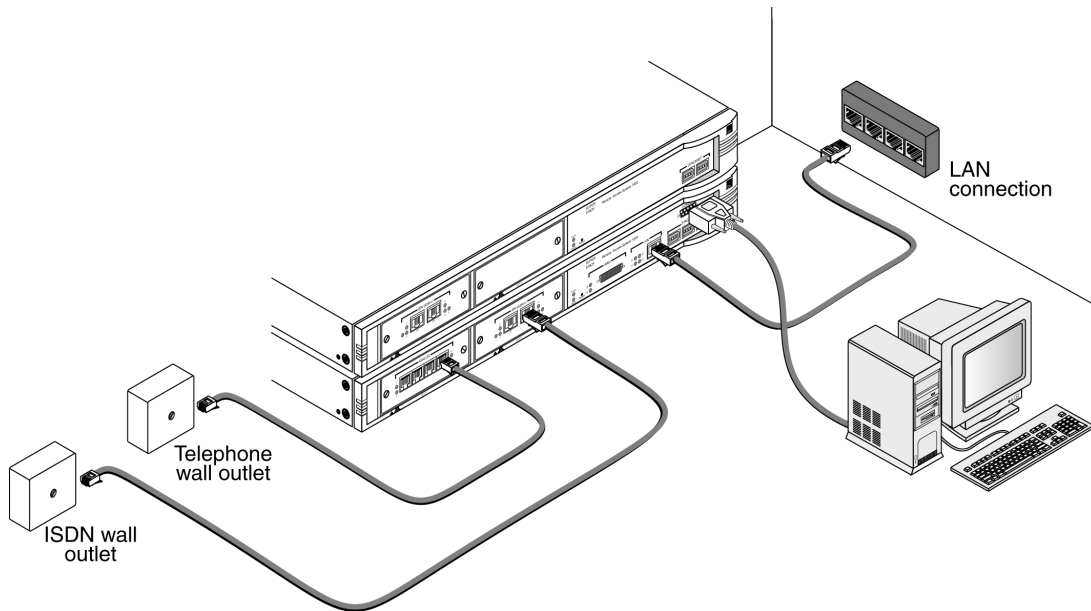
Figure 1-5 Router Unit and Port Expansion Unit Cable Connections

Router Unit and Primary Rate Access Unit Cabling

Connect the following cables to the Router Unit and Primary Rate Access Unit as shown:

> *RAS 1500 systems configured with a Primary Rate Access Unit only have a T1/E1 line and console cable. However the Router Unit may have an analog or BRI-ISDN I/O Module. The number and type of telco connections depends on I/O modules installed in the Router Unit.*

- PRI
- BRI-ISDN
- Analog
- LAN
- WAN
- Console
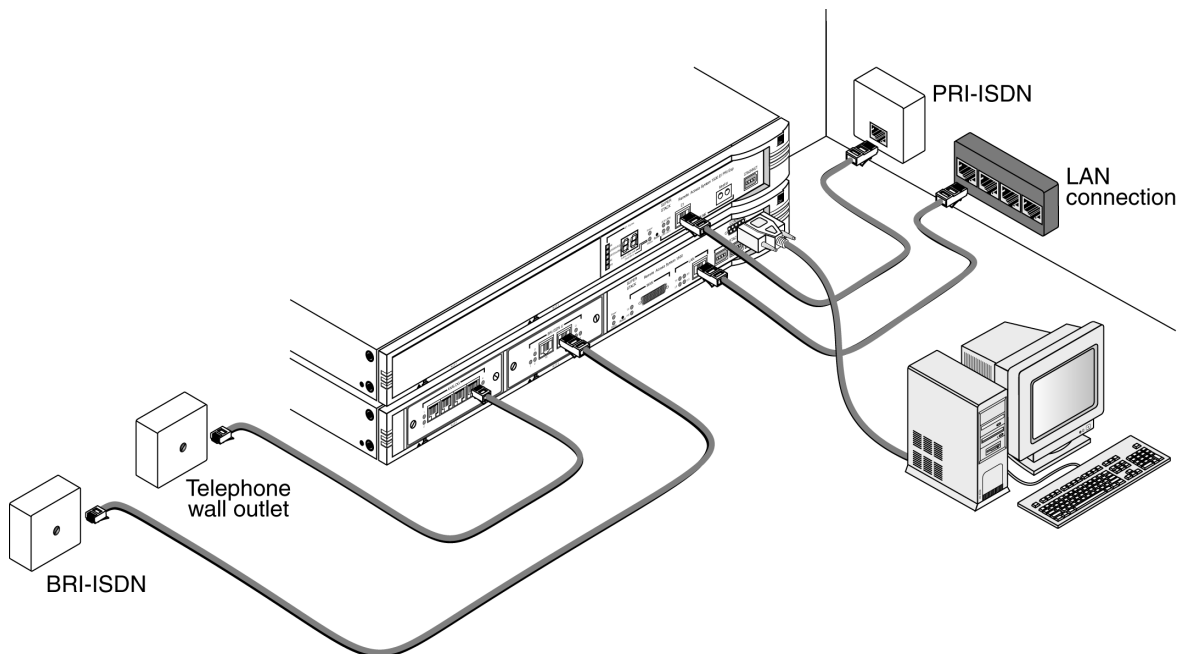
Figure 1-6   Router Unit and Primary Rate Access Unit Cable Connections

Powering the RAS 1500 On or Off	There is no power switch on the RAS 1500. Use the following steps to power on or power off the units in a RAS 1500 stack.
Powering On the RAS 1500	To power on the RAS 1500, connect the power cord to the AC power port of the unit and plug the power cord into the AC power supply source.
Powering Off the RAS 1500	To power off the RAS 1500, disconnect the AC power cord from the AC power port of the unit.

WARNING: Always disconnect the AC power cord before removing the cover of the Router, Primary Rate Access Unit, or Port Expansion Unit.

Connecting the STACKNET Cables	After the Router Unit and Port Expansion Unit AC power cords are connected, connect the STACKNET cable(s). Connect each Port Expansion Unit or a single Primary Rate Access Unit to the Router Unit making sure the connection is secure. Note that the ferrite end must be connected to the Router Unit as shown.
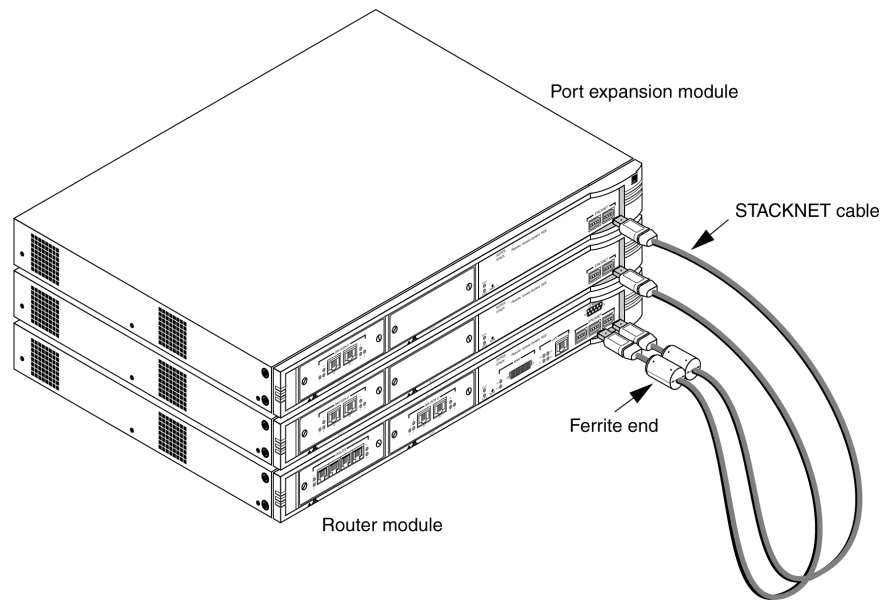
Figure 1-7   STACKNET Connections (Router Unit and two Port Expansion Units)

When adding a Port Expansion or Primary Rate Access Unit to an existing RAS 1500 system, connect the Port Expansion Unit AC power cord before connecting the STACKNET cable. Connecting the STACKNET cable before the AC power cord may cause existing calls to disconnect when AC power is applied.

2

CONFIGURING THE RAS 1500 SOFTWARE

This chapter contains the following information:

- Overview
- Before You Begin
- Initial Configuration from PCs Running Microsoft Windows 95, 98, or NT
- Initial Configuration from UNIX-based PlatformsLast Setup Wizard Screen
- Configuring the Port Expansion Unit with the CLIConfiguring the Port Expansion Unit with the CLI
- Getting CLI Help
- Additional CLI Information
- Using the Web Configuration Interface from PC and UNIX-based Platforms
- Viewing Online Help

Overview   This chapter describes how you will configure your RAS 1500 from both PC-based platforms running Widows 95, 98, or NT and UNIX-based platforms. For PC users, it describes how to set your initial configurations to your RAS 1500, such as an IP address, through the IP Wizard accessible from your source CD. For UNIX users, it describes setup of initial configuration through the CLI Quick Setup. For both PC and UNIX platforms, it describes configuration of basic features using the Web Configuration Interface. The Web Configuration Interface is a browser-based application that provides a platform independent solution to configuring the SuperStack® II RAS 1500 System units.

Before You Begin
Out of the box, a RAS 1500 does not have an IP address. Before you can configure features on your RAS 1500, you must first configure it with an IP address.

There are separate procedures for configuring an IP address for PC platforms running Microsoft Windows 95, 98 and NT and for UNIX-based platforms. Refer to the procedures, in the sections that follow, that apply to the platform you are using.

Initial Configuration from PCs Running Microsoft Windows 95, 98, or NT
The following procedures describe how you will assign an IP address, network mask, and community string to the RAS 1500 using the IP Wizard from the source CD. The RAS 1500 must be connected to the same LAN segment as the workstation and cannot have an IP address.

To set the RAS 1500 IP Address, perform the following:

1 Insert the system resource CD into the CD-ROM drive. The CD splash screen shown in Figure 2-1 will appear. This is the RAS 1500 Setup Screen.

On PCs with autorun enabled, the RAS 1500 Setup menu launches and provides you with a list of options.

Figure 2-1 RAS 1500 Resource CD Splash Screen

2 Click *Configure IP Address*. The IP Address Configuration Wizard Screen appears as shown in Figure 2-2.

i *If the PC does not auto run the CD, perform the following:*

   a At the Windows 95, 98, or NT desktop, click *Start*, then click *Run*.

   b In the Run dialog box, type: **<your CD drive letter>:\setup**

   c Click *OK*, then click *Configure RAS1500*.

IP Address Configuration Wizard ✕

MAC Address

IP Address Settings

IP Address: [   ]

Netmask: [   ]

Community String: [public]

Select the MAC address of your device from the list. Then enter the IP address, netmask, and community string to assign to your device. The IP address must be a member of the IP network to which the device is currently attached.

To only "set" the IP address click on Set below. To "set" the IP address and launch the Web Browser to configure the RAS 1500 click on Configure below.

(Example 192.168.200.254, 255.255.255.0, public)

[Configure]   [Set]   [Exit]

Figure 2-2 IP Address Configuration Wizard

3 In the MAC Address list, select the RAS 1500 to which you want to assign an IP address. This list contains devices that are connected to the same LAN segment as the workstation and do not have an IP address.

i *The RAS 1500's MAC Address is printed on a sticker on the rear of the unit.*

4 In the IP Address text box, type the IP address you want to assign to the RAS 1500 (for example, 192.112.227.15). The IP address you assign must be a part of the IP network to which to your RAS 1500 is attached.

5 In the Netmask text box, type the network mask you want to assign to the RAS 1500. For example, a class C network without a subnet mask is 255.255.255.0.

6 In the Community String text box, type the community string (for example, public) you want to assign to the RAS 1500. This sets both the read and write community strings of the RAS 1500.

7 Click *Set* and then click *Configure*. The IP address is assigned to the RAS 1500 and a web browser launches, loading the main screen of the Web Configuration Interface shown below in Figure 2-3.
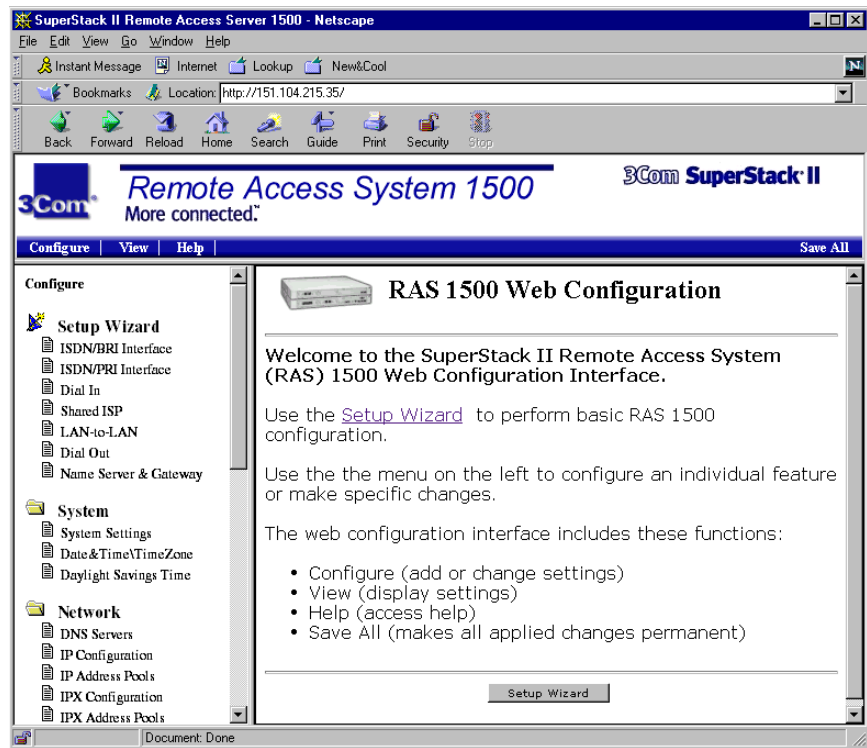
Figure 2-3 RAS 1500 Web Configuration Interface Screen

8 You are now ready to configure your RAS 1500 using the Web Configuration Interface. Refer to the section, "Using the Web

Configuration Interface from PC and UNIX-based Platforms" for configuration procedures using this browser-based tool.

Initial Configuration from UNIX-based Platforms	The section below describes how you will perform initial configuration for your RAS 1500 using the CLI Quick Setup. The RAS 1500 must be connected to the same LAN segment as the workstation and cannot have an IP address. The CLI Quick Setup will let you set up initial required configuration for the system. Although you may then continue to set up other features through the CLI, 3Com recommends that you continue your configuration by using the web-based Web Configuration Interface described in one of the sections that follow in this chapter.
Accessing The CLI	Before you can use the CLI Quick Setup to configure the RAS 1500 you need to access the CLI. An terminal emulation program (8 date bits, no parity and 1 stop bit) is required. You will configure the serial port on the UNIX station.

The CLI Quick Setup starts automatically after the boot process of an unconfigured device.

If the RAS 1500 does not ask you if you want to run the quick setup program, the RAS 1500 has already been configured. In this case, type: **delete config** and answer **yes** when you are prompted to verify this operation. Note however, that all configuration information, such as users, will be erased.

The quick setup is as follows:

```
ras1500> Welcome to the RAS1500 Quick Setup

The RAS1500 Quick Setup will let you set up simple
configuration for your whole system or different portions of
the system.

Do you want to continue with RAS1500 Quick Setup? y

There are two ways to proceed: You can set up only the basic
configuration, which will allow you to continue with
the browser-based Web Configuration Interface. Or you
can configure a simple configuration for IP and IPX and
AppleTalk.
Do you want to configure only enough to use the web-based
system [yes]? y
```

ℹ️ *The default for the above question is yes. 3Com recommends that you enter y here to configure only initial settings using this CLI Quick Setup. The section that follows, "Using the Web Configuration Interface from PC and UNIX-based Platforms," will describe procedures for using the Web Configuration Interface to continue your configuration of the RAS 1500.*

```
Please answer the following questions with "yes" or "no" to
indicate which portions of the system you want to configure.
When Quick Setup displays a question it will display a
default answer in square brackets, like "[yes]". If you
simply press enter, this is the answer that will be
used for you.

Network management [yes]?
IP [yes]?
IPX [no]? Y
AppleTalk [no]?
Quick Setup Identification information
-------------------------------------
>>> Enter the name of your system []: system name
>>> Who is the system contact person []? Your Name
>>> Where is this system located []? Your Building Location

Quick Setup Management information
---------------------------------

You can set up your system to require a user to log in via the
console or leave it so that the console is always in command
line mode.
>>> Do you want a log in required at the console [no]?
>>> Do you want to be able to manage the system via SNMP
[yes]? An SNMP community names a group of systems that can
manage your system via SNMP. It is a rudimentary form of
security.

>>> What SNMP community will manage this system [public]?

Along with a community name, you need to give the IP address
of the system using that community. "0.0.0.0" means any
system.

>>> What is the address of the station for this community
[0.0.0.0]?
```

You also need to specify if this community can only read
information, or read and write information.

>>> Can this community change management information [yes]?
This completes the section on SNMP management configuration.
>>> Do you want to allow command line management via TELNET
[yes]?

For TELNET management of the system you need to create a user
name and password to control access.
>>> What user name will be allowed to manage this system
[administrator]?
>>> What password will be used for this user []? *password*

>>> Do you want to set up the syslog daemon [no]? **n**

>>> Would you like to set up radius accounting [no]? **n**
>>> Would you like to set up radius authentication [no]? **n**

Quick Setup IP information

The RAS1500 uses a network name to identify the network for
future management commands.

>>> Enter the network name of your IP network [ip]:
>>> Enter the IP address for the RAS1500 []: **192.168.1.1**

The IP mask can be specified as a class ("A", "B", or "C"),
the number of one bits in the mask, or as an address in the
format
255.x.x.x
>>> What should the mask be set to [C]?

You need to specify the framing for the IP network. It should
be either "ethernet_ii" or "snap".
>>> What is the framing for the IP network [ethernet_ii]?

>>>Do you want to set up a default gateway [yes]?

The default gateway gives the address of a router that the
RAS1500 will forward packets to when it has no other route to
their destination. It cannot be the same address as the IP
address for the RAS1500 nor can it be a broadcast address for
its IP address class.

```
>>> Enter the IP address of the default gateway []?
192.168.1.20

The metric or "hop count" tells the RAS1500 how far the
default router is from the RAS1500.
>>> What metric should be applied to the default gateway [1]?

>>> Do you want to configure DNS for this RAS1500 [yes]?
>>> What is the address of the main DNS server for this
RAS1500 []?
192.168.1.2
>>> What is the default DNS domain name for this RAS1500 []?
yourcompany.com

You can either assign each user his or her own address or you
can set aside a pool of addresses for dynamic allocation.
>>>Do you want to set up an address pool [yes]?

The address pool is a continuous range of addresses.

>>>Enter the name of your IP address pool [ippool]:
>>>What is the initial address in the pool []? 192.168.1.10
>>>How many addresses should be the pool [127]? 8

It is possible to restrict access to the TFTP server to a
specific system or a list of systems. Quick Setup will allow
you to enter one system that is allowed or allow all systems
access

>>>Do you want to allow all systems to access the TFTP server
[no]? y
IP setup is completed.
```

Configuring the Port Expansion Unit with the CLI

The RAS 1500 stack does not immediately recognize the removal or substitution of port expansion units.

To remove and substitute another port expansion unit to an existing setup, issue the **save all** command at the CLI prompt. Then issue the **reboot** command at the CLI prompt.

After the reboot process occurs, the router unit automatically recognizes each port expansion unit attached to it.

Getting CLI Help	To access help in the CLI, type **help** and press Enter.

Additional CLI Information	For a more complete reference to configuring the RAS 1500 through the CLI, consult the RAS 1500 System Management Guide on the RAS 1500 Resource CD-ROM.

Using the Web Configuration Interface from PC and UNIX-based Platforms	Once you have configured initial settings, including the IP address, for the RAS 1500 from either the IP Wizard (PC users) or from the CLI Quick Setup (UNIX users) you are now ready configure features of the RAS 1500 using the Setup Wizard in the browser-based Web Configuration Interface.

PC Users: If you used the IP Wizard to configure the IP address, a web browser would have automatically launched displaying the RAS 1500 Web Configuration Screen.

UNIX Users: If you used the CLI Quick Setup to perform initial configurations, you must now start a web browser and enter the IP address of the RAS 1500 you want to configure.

If you want to configure another RAS 1500 that already has an IP address, start the web browser and enter the IP address of the RAS 1500 that you want to configure.

The Setup Wizard allows you to configure basic features of the RAS 1500. The procedures for configuring these features using the Setup Wizard are as follows:

1 Click *Setup Wizard* from the Web Configuration Interface Screen. The screen shown in Figure 2-4 will appear. Make sure you read the information provided on this screen; it defines the buttons that will

appear on the bottom of the screens that will enable you to control the navigation and operation of the Setup Wizard.

Setup Wizard

This Setup Wizard guides you through the basic RAS 1500 configuration tasks.

The font conventions used for the field descriptions are:

Bold	Indicates a required field or value.
Normal	Indicates an optional field or value.

The buttons at the bottom of each page allow you to control the navigation and operation as follows:

Apply	Set the current page values. (Save all is required to make values permanent)
Reset	Reset the current page values. (Default values in *Create* mode. Last saved values in *Modify* mode.)
Create	Create a new entry.
Modify	Modify existing entries.
Basic	Minimum required configuration.
Advanced	More detailed configuration.
Previous	Return to the previous page.
Next	Continue to the next page *without* applying values.
Skip	Continue to the next item to be configured.
Help	Display detailed help for the current page.

[Previous] [Next] [Help]

Figure 2-4   Setup Wizard Main Screen

2 Click *Next* when you are ready to begin configuring basic features of your RAS 1500. The Interface Configuration Screen (the first of the features screens) will appear.

Some features require that you navigate through more than one screen before you can select "Apply" to activate the settings for that feature. Use "Next" to get to the next screen associated with the feature you want to configure. Use "Skip" if you do not want to configure the feature on the current screen but do want to get to the next feature offered in the Setup Wizard.

3 The first time you click *Next* to navigate to a feature you want to configure, you will be prompted with the User Name and Password Required dialogue box shown below in Figure 2-5.
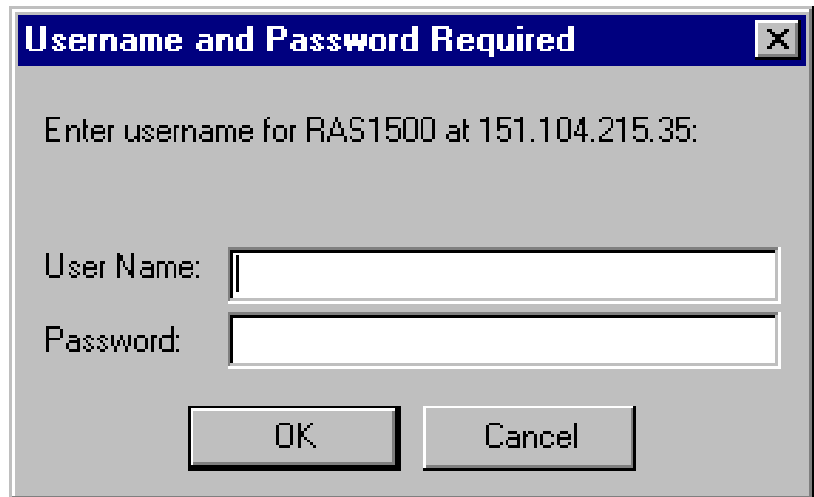
Figure 2-5   User Name and Password Required Screen

4 Enter the default User Name **Admin** and the Password **Password**. This default will be overwritten when you setup up your manage user name and password.

5 You will continue to navigate through the Setup Wizard and set up only those features you want functional on your RAS 1500. You can do this in one of two ways:

a You can navigate through the Setup Wizard, screen-by screen, using the *Skip* button at the bottom of the page to skip over those features that you do not want to configure (see Figure 2-6).

   or

b you can click directly on the feature you want to configure from the Setup Wizard menu on the left split screen which is visible from any screen in the Web Configuration Interface (see Figure 2-7).
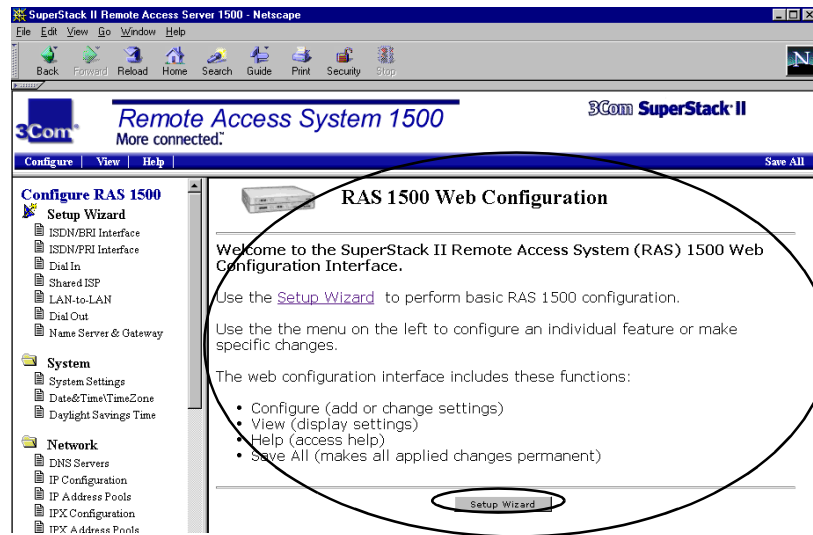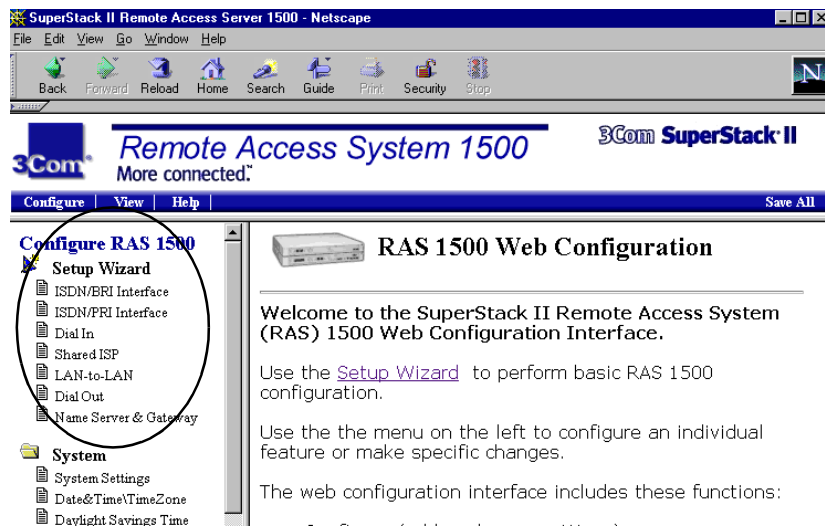
Figure 2-6   Setup Wizard

Figure 2-7   Setup Wizard Menu

6 Follow only the steps below that apply to features you want to configure.

7 **ISDN/BRI Interface** — Allows you to configure the BRI-ISDN I/O modules for the switch type being used. See Figure 2-8.

ISDN/BRI Interface Configuration

Figure 2-8 ISDN/BRI Interface Configuration

a From the Geographic Region drop-down menu, select your location, *North America* or *Europe or Asia*.

b From the Modem Interface drop-down menu, select one of the following ISDN/BRI modem interfaces you want to configure.

c From the Switch Type drop-down menu, choose the switch type you are using from the list provided.

d If you selected *North America* from the Geographic Region drop-down menu, enter your *First Service Profile Identifier* and *Second Service Profile Identifier*, obtained from your telco, in the fields provided. If you selected *Europe or Asia* from the Geographic Region drop-down menu, you will not see these fields.

e If you selected *North America* from the Geographic Region drop-down menu, enter your *Directory Number 1* and *Directory Number 2*, obtained from your telco, in the fields provided. If you selected *Europe or Asia* from the Geographic Region drop-down menu, directory numbers are not required.

f Click *Apply.*

8 ISDN/PRI Interface (T1 for North America) — Allows you to configure the Primary Rate Access Unit for the switch type being used. See Figure 2-9.

  a From the Switch Type drop-down menu, choose the switch type you are using from the list provided.

PRI Access Unit Configuration

PRI Access Unit Settings	
Switch Type:	AT&T 5ESS Custom ▾
Nic Config Type:	LongHaul
DSX1 T1 Line Type (framing method):	dsx1ESF
TX Line Buildout (signal attenuation):	db0pt0

Previous | Reset | Apply | Advanced | Next | Help

Figure 2-9 T1 PRI Access Unit Basic Configuration

  b Click *Apply* or if want to view or modify Nic Config Type, DSX1 T1 Line Type (framing method), or TX Line Buildout (signal attenuation) click *Advanced*. If you click *Advanced*, the screen shown below in Figure 2-10 will appear.

PRI Access Unit Configuration

PRI Access Unit Settings	
Switch Type:	AT&T 5ESS Custom ▾
Nic Config Type:	LongHaul ▾
DSX1 T1 Line Type (framing method):	ESF ▾
TX Line Buildout (signal attenuation):	db0pt0 ▾

Previous | Reset | Apply | Basic | Next | Help

Figure 2-10 T1 PRI Access Unit Advanced Configuration

  c Drop-down menus for Nic Config Type, DSX1 T1 Line Type (framing method), and TX Line Buildout (signal attenuation) will now be visible. Select the settings you want from these drop-down menus. If you

select *ShortHaul* from the Nic Config Type drop-down menu, the T1 ShortHaul Distance (Feet) drop-down menu will be visible. See Figure 2-11.

PRI Access Unit Configuration

PRI Access Unit Settings	
Switch Type:	AT&T 5ESS Custom ▾
Nic Config Type:	ShortHaul
DSX1 T1 Line Type (framing method):	dsx1ESF
TX Line Buildout (signal attenuation):	db0pt0
T1 ShortHaul Distance: (Feet)	0Thru133Ft

Previous   Reset   Apply   Advanced   Next   Help

Figure 2-11   T1 PRI Access Unit Basic ShortHaul Screen

d Click *Apply* or if you want to view or modify DSX1 T1 Line Type (framing method), TX Line Buildout (signal attenuation), or T1 ShortHaul Distance (Feet), click *Advanced*. The screen shown in Figure 2-12 will appear. Choose the settings you want from these drop-down menus.

PRI Access Unit Configuration

PRI Access Unit Settings	
Switch Type:	AT&T 5ESS Custom ▾
Nic Config Type:	ShortHaul ▾
DSX1 T1 Line Type (framing method):	ESF ▾
TX Line Buildout (signal attenuation):	db0pt0 ▾
T1 ShortHaul Distance: (Feet)	0-133 ▾

Previous   Reset   Apply   Basic   Next   Help

Figure 2-12   T1 PRI Access Unit Advanced ShortHaul Screen

e Click *Apply*.

9 **ISDN/PRI Interface (E1 for Europe or Asia)** — Allows you to configure the Primary Rate Access Unit for the switch type being used. See Figure 2-13.

a From the Switch Type drop-down menu, choose the switch type you are using from the list provided.

PRI Access Unit Configuration

PRI Access Unit Settings	
Switch Type:	NET5/CTR-4 (EuroISDN) ▼
DSX1 E1 Line Type (framing method):	dsx1E1

Previous   Reset   Apply   Advanced   Next   Help

Figure 2-13   E1 PRI Access Unit Basic Configuration

b Click *Apply* or if want to view or modify DSX1 E1Line Type (framing method), click *Advanced*. If you click *Advanced*, the screen shown below in Figure 2-14.

PRI Access Unit Configuration

PRI Access Unit Settings	
Switch Type:	NET5/CTR-4 (EuroISDN) ▼
DSX1 E1 Line Type (framing method):	E1 ▼

Previous   Reset   Apply   Basic   Next   Help

Figure 2-14   E1 PRI Access Unit Advanced Configuration

c A drop-down menu for DSX1 E1 Line Type (framing method) will now be visible. Select the setting you want from the drop-down menu.

d Click *Apply.*

10 **Dial In** — Allows you to configure users for dial in access. See Figure 2-15.

![i]

The message displayed at the top of the Dial In Access Screen as shown in Figure 2-15, "You are currently in Create Mode" is variable and will indicate the current mode you are in, either "Create" or "Modify." In this example, the message displayed indicates the mode is "Create." If you are in Modify mode, the message displayed will indicate that. You will notice that either message will appear throughout additional configuration screens as you proceed with the setup of other features.

Dial In Access

Figure 2-15   Dial In Access

a In the User Name field enter a unique identifier you want to assign for dial in access. There is a limit of 32 case-sensitive ASCII characters.

b In the Password field enter the password you want to assign to this user name. There is a limit of 15 ASCII characters that are not case-sensitive.

c From the Address Selection drop-down menu, select *Assigned* (user is assigned an IP Address from an IP Address Pool or DHCP Proxy you will later set up), *Specified* (the user is given an IP Address you will specify on this page)*,* or *Negotiated* (the RAS 1500 accepts the IP Address from the remote user) as the designation type for the IP Address.

d In the Callback drop-down menu, select the callback setting for this user, *Disabled*, *Fixed*, or *Roaming.* Note that *Caller ID* also appears in this menu. Do *not* select *Caller ID* as it is not an option for this configuration. Enter information that is requested for the callback type you have selected.

> ℹ️ *If you are not sure what callback setting you want to configure, see RAS 1500 the System Management Guide for further information on callback types.*

   e Click *Apply.*

11 Shared ISP — Allows you to configure for Shared ISP through NAT (Network Address Translation) or PAT (Port Address Translation). See Figure 2-16.

Shared ISP Configuration

Figure 2-16 Shared ISP Configuration

a In the ISP Name field, enter the name of your Internet Service Provider.

b In the ISP Account User Name field, enter your user account name provided by your ISP.

c In the ISP Account Password field, enter the password provided by your ISP.

d In the Phone Number field, enter the primary phone number, including area code, if necessary, you received from your ISP, for example, 508-555-5555.

e In the Alt. Number field, enter the secondary phone number, including area code, if necessary, you received from your ISP, for example, 508-555-6666. This number will be used if the primary is unavailable.

f From the Address Selection drop-down menu, select *Negotiated (the RAS 1500 accepts the IP Address provided by the ISP) or Specified* (the ISP's IP Address is specified on this page) as the designation type for the IP Address. Note that *Assigned* also appears as an option under this pull-down menu. However, *Assigned* is not valid for this configuration.

g From the Connection Type drop-down menu, select *On Demand* or *Continuous*.

h From the Address Translation Type drop-down menu select the IP Address Translation Type, *Port Address (PAT)* or *Network Address (NAT)* Translation that you will configure.

If you are not sure which type of address translation you have to configure contact your ISP and refer to the RAS 1500 System Management Guide for details on NAT and PAT.

i In the PAT Default Server Address field, enter the default IP address that will be used for Port Address Translation.

j From the Number of Multilink Channels drop-down menu, select the number of multilink channels the RAS 1500 uses to access the ISP.

k From the Select Modem Interface(s) drop-down menu, select the modem through which the RAS 1500 will dial out to the ISP.

l Click *Apply* and click *Next*.

m If you selected Port Address (PAT) from the Address Translation Type drop-down menu the screen shown in Figure 2-17 will appear.

  ■ In the Framed Route Address field enter the framed route address.

  ■ Click *Apply*.

Shared PAT Configuration

Shared PAT	
ISP Name:	AT&T
Framed Route Address:	0.0.0.0

Previous   Reset   Modify   Apply   Next   Help

Figure 2-17   Shared PAT Configuration

n If you selected Network Address (NAT) from the Address Translation Type drop-down menu, the screen shown below in Figure 2-18 will appear.

Shared ISP NAT Configuration

You are currently in *Create* mode.
To view or modify an existing entry click *Modify* below.

Shared NAT	
ISP Name:	c
NAT Selection:	Dynamic ▾
Starting IP Address:	0.0.0.0
Number of Addresses:	1

Previous   Reset   Modify   Apply   Next   Help

Figure 2-18   Shared ISP Dynamic NAT Configuration

■ From the NAT Selection Name drop-down menu, select *Dynamic* or *Static* for the type of Network Address Translation you want to configure.

■ If you select *Dynamic*, the fields, Starting IP Address and Number of Addresses, will be visible. See Figure 2-18.

In the Starting IP Address field, enter the starting IP address from the contiguous number of public IP addresses in the pool that will be available for outgoing TCP/IP connections.

In the Number of Addresses field, enter the number of public IP addresses that will be available as a continuous pool for outgoing TCP/IP connections.

Click *Apply.*

- If you select *Static*, the fields, Public IP Address and Private IP Address, will be visible. See Figure 2-19.

    In the Public IP Address field, enter the IP address in the contiguous pool of addresses that will be used for NAT.

    In the Private IP Address field, enter the number of IP address that will be used for NAT.

    Click *Apply.*

Shared ISP NAT Configuration

You are currently in *Create* mode.
To view or modify an existing entry click *Modify* below.

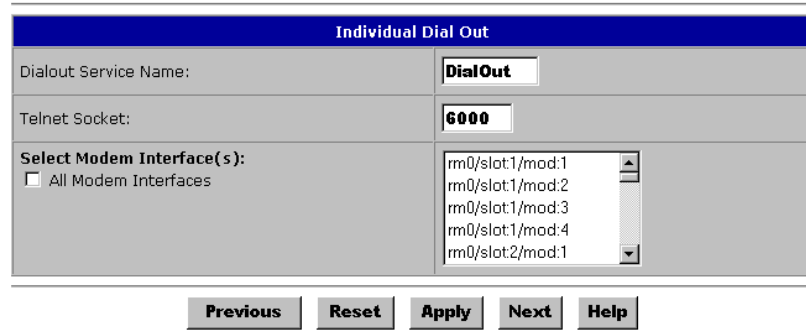| Shared NAT	
ISP Name:	c
NAT Selection:	Static
Public IP Address:	0.0.0.0
Private IP Address:	0.0.0.0

Previous Reset Modify Apply Next Help

Figure 2-19   Shared ISP Static NAT Configuration

12 Dial Out — Allows you to configure the RAS 1500's modems so that users on the local LAN can access the RAS 1500's as though the modems were connected to the user's local COM port. See Figure 2-20.

Individual Dial Out Access Configuration

Individual Dial Out	
Dialout Service Name:	**DialOut**
Telnet Socket:	**6000**
Select Modem Interface(s): ☐ All Modem Interfaces	rm0/slot:1/mod:1 ▲ rm0/slot:1/mod:2 rm0/slot:1/mod:3 rm0/slot:1/mod:4 rm0/slot:2/mod:1 ▼

Previous   Reset   Apply   Next   Help

Figure 2-20   Individual Dial Out Access Configuration

a In the Dialout Service Name field, enter the name you want to assign for individual dial out access. There is a limit of 8 ASCII characters.

b In the Telnet Socket field, enter the physical socket number that you are configuring for individual dial out access.

c From the Select Modem Inteface(s) drop-down menu, select the modem interface you want to configure for individual dial out access. Click the *All Modem Interface(s)* box if you want to configure all modems.

d Click *Apply*.

13 LAN-to-LAN — Allows you to configure the RAS 1500 to access a remote router. See Figure 2-21.

-

LAN-to-LAN Configuration

Figure 2-21 LAN-to-LAN Configuration.

a In the Incoming User Name and Password fields, enter the *Incoming User Name* and *Incoming Password* of the remote router you want to your RAS 1500 to be able to access.

b In the Outgoing User Name and Password fields, enter the *User Name* and *Password* of your RAS 1500.

c In the User's Phone Number field, enter the *Phone Number*, including area code, if necessary, of the remote router. For example, 508-555-5555.

d In the Alt. Number field, enter the Alternate Phone number, including area code, if necessary, of the remote router, for example, 508-555-6666. If the primary number cannot be reached then this number will be used.

e From the Connection Type drop-down menu, select *On Demand*, *Continuos*, *Manual*, or *Timed.*

f In the Local IP Address field, configure the *IP Address* of the local end of your link. If using an unnumbered, configure 0.0.0.0.

g In the Remote Router IP Address field, enter the *IP Address* by which the RAS 1500 identifies the remote router on this link.

h In the Remote Router IP Mask field, enter the subnet mask of the Remote Router.

i From the IP Routing Protocol drop-down menu, select *RIPV1* or *RIPV2*.

j From the IP Routing Type Menu, select *Listen*, *Send*, *Both*, or *None*.

k From the Number of PPP Channels drop-down menu, select the number of point-to-point protocol channels the RAS 1500 uses to access the ISP.

l From the Select Modem Interface drop-down menu, select the modem interface from which the RAS 1500 dials out to the remote router.

m Click *Apply.*

14 Name Server & Gateway — Allows you to configure the Domain Name and the IP addresses of the domain name servers for the domain, the IP addresses for the WINS Servers and the gateway IP address to which packets are sent if the packet's destination does not exist in the RAS 1500's routing table. See Figure 2-22.

Name Server & Gateway Configuration

Figure 2-22   Name Server & Gateway Configuration

a   In the Domain Name field, enter your Domain Name, for example, *ne.3com.com*.

b   In the Primary field under Domain Name Servers, enter the IP Address of the Primary Domain Name Server.

c   In the Secondary field under Domain Name Servers, enter the IP Address of the Secondary Domain Name Server.

d   In the Primary field under WINS Servers, enter the IP Address of the Primary Windows Internet Naming Server.

e   In the Secondary field under WINS Servers, enter the IP Address of the Secondary WINS Server.

f   Click *Apply.*

For help on configuring these features, click "Help" from the banner tool bar visible in any screen in Web Configurator. Click the topic you want further information on. See Figure 2-23.

Figure 2-23   Online Help

15 Once you have navigated through all feature screens you will reach the final screen of the Setup Wizard. Click *Save Configuration* to save to memory the configuration settings you made. See Figure 2-24.

Figure 2-24   Last Setup Wizard Screen

16 You can now configure advanced settings under the *System, Network, Administration, Dial In/Out,* and *Management* Menus.

Viewing Online Help

The Web Configuration Interface provides three levels of help: "general", "screen-specific", and "status line."

General help assists you with the overall web interface. When you click *Help* on the banner tool bar, the help system appears in the navigation (left) frame. This opens up the entire help system and allows you to read through the various topics before you configure a RAS 1500.

Screen-specific help assists you with RAS 1500 and RAS 1500 Expansion objects and parameters in the work area or main window. It also guides you through setting up typical features.

Status-line help simply identifies where you are in the Web Configuration Interface.

To access "general" help:

■ From the Help menu (at the top of the web interface window), select *Help*.

To access "screen-specific" help:

1 Select a topic from the left side of the web configuration interface.

2 Select *Help* on the interface window.

A
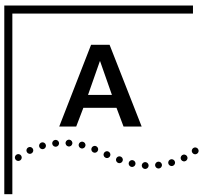
DESCRIPTION OF LEDs

This appendix contains the following information:

- RAS 1500 LEDs
- Primary Rate Access Unit Rate Access Unit (PAU) Alarms

RAS 1500 LEDs

The following tables describe Light Emitting Diodes (LEDs) on the Router Unit, Port Expansion Unit, Analog I/O modules, and BRI-ISDN I/O modules.

Power and Status LEDs

LED	Color	Status
Power	Green	Power is from the main power supply unit.
Power	Yellow	Power is from the backup power supply unit.
Power	Off	Power cable is not connected.
Status	Green	The RAS 1500 is running normally.
Status	Blinking green	The RAS 1500 software is running normally.
Status	Blinking yellow	Diagnostics are running.
Status	Red	Unit has just been powered on, or diagnostics have failed.

WAN Port LEDs

LED	Color	Status
Tx	Green	The RAS 1500 is sending data.
Tx	Off	The RAS 1500 is not sending data.
Rx	Green	The RAS 1500 is receiving data.
Rx	Off	The RAS 1500 is not receiving data.

LAN Port LEDs

LED	Color	Status
Tx	Green	The RAS 1500 is sending data.
Tx	Off	The RAS 1500 is not sending data.
Rx	Green	The RAS 1500 is receiving data.
Rx	Off	The RAS 1500 is not receiving data.
Lk	Green	The RAS 1500 has an active connection.
Lk	Off	The RAS 1500 does not have an active connection.
CO	Yellow	Data collisions have occurred.
CO	Off	Data collisions have not occurred.

**BRI-ISDN I/O
Module LEDs**

LED	Color	Status
1,2,3, or 4	Green	A call is connected.
1,2,3, or 4	Yellow	A call is being negotiated.
1,2,3, or 4	Red	Module failed diagnostics. If all LEDs are red, the modem-manager software has failed.
1,2,3, or 4	Off	No call is connected.
D	Flashing green	Port is being initialized.
D	Flashing yellow	Port is being initialized.
D	Yellow	The physical ISDN link is active, but the D-Channel is not fully functional.
D	Green	The D-Channel is fully functional.
D	Red	The RAS 1500 failed diagnostics.
D	Off	ISDN U and ISDN S/T - The physical ISDN link is not active.

**Analog I/O
Module LEDs**

LED	Color	Status
1,2,3, or 4	Green	A call is connected.
1,2,3, or 4	Yellow	A call is being negotiated.
1,2,3, or 4	Red	Module failed diagnostics. If all LEDs are red, the modem-manager software has failed.
1,2,3, or 4	Off	No call is connected.

Primary Rate Access Unit (PAU) Alarms

The Primary Rate Access Unit (PAU) has a seven-segment display and LEDs to show PRI-ISDN status as shown in the table below.

Alarm	Condition	Carrier LED	Alarm LED	Description
F2 (RAI) Yellow	Remote Frame Alarm	Green	Amber	The remote end has lost framing or signal and sends this alarm to the Primary Rate Access Unit.
F3 (LOS) Red	Loss of Signal	Red	Red	The T1 or E1 signal has been lost. The Primary Rate Access Unit declares a red alarm and sends out a yellow alarm to the remote end.
F3 (OOF) Red	Out of Frame	Green	Red	The T1 or E1 training signal has been lost and the framed payload can no longer be received. The Primary Rate Access Unit declares a red alarm and sends out a yellow alarm to the remote end.
F4 (AIS) Blue	Unframe All ones Signal	Amber	Amber	The remote end is sending out an all ones signal. This usually occurs when the remote end cannot send out a framed signal. The Primary Rate Access Unit declares a blue alarm.
F5 (E1 only)	Continuous CRC errors	Green	Red	Primary Rate Access Unit receives excessive CRC errors.

B
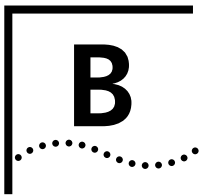
CONFIGURATION ASSISTANCE

This appendix contains the following configuration information:

- Configuration Worksheet

Configuration Worksheet

Obtain the following optional information and record the information in the space provided below:

BRI-ISDN Users

Obtain this from your BRI-ISDN provider	Your value
SPID numbers for NI–1 (1–25 digits)	
Switch type	
Directory numbers	

PRI-ISDN Users

Obtain this from your PRI-ISDN provider	Your value
SPID numbers for NI–1 (1–25 digits)	
Switch type	
Framing Method	
TX Line Buildout	
Short Haul (T1 only)	
Directory numbers	

IPX users

Obtain this from your network administrator	Your value
IPX network name	
IPX network number	
IPX network framing (802.2 = DSAP)	
IPX user addressing	

NOS Users

Obtain this from your network administrator	Your value
NOS servers' IP address	__.__.__.__
NOS servers' Secret Password	

RADIUS Users

Obtain this from your network administrator	Your value
Radius servers' IP address	__.__.__.__
Radius secret	

UNIX SYSLOG users

Obtain this from your network administrator	Your value
Syslog servers' address	__.__.__.__
Syslog level value	

Users with an ISP

Obtain this information	Your value
ISP dial-in number (RAS 1500 to ISP)	
Alternate ISP dial-in number (RAS 1500 to ISP)	
RAS 1500's password (assigned by ISP)	
WAN IP address	__.__.__.__
WAN subnet address	__.__.__.__

Users connecting to a remote LAN

Obtain this information from the remote administrator	Your value
Network dial-in number	
Alternate network dial-in number	
RAS 1500's password (assigned by network administration)	
RAS 1500's Username	

ISDN Provisioning Service

3Com offers a free ISDN line ordering service to customers in the USA and Canada. This service acts as a single point of contact with the telephone company. We strongly recommend that you use this service to order the proper ISDN lines for your 3Com equipment to ensure correct operation.

ISDN provisioning services are available to customers in the U.S. and Canada.

When you call 1-800-343-3266 the representative will ask you pertinent ordering information and place the ISDN order with your local telephone company. The representative provides you with the date of installation, service profiles IDs (SPIDs), and switch type information.

For technical support refer to our 3Com web site:

http://www.3Com.com/ras1500
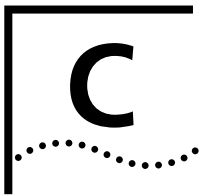
C TECHNICAL SPECIFICATIONS

This chapter contains information about technical specifications for the RAS 1500.

Certification

United States

FCC Part 15 Compliance Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

If these suggestions do not help, consult the following booklet:

Interference to Home Electronic Entertainment Equipment Handbook

You can order the booklet from the U.S. Government Printing Office, Washington, DC 20402. Ask for stock number 004-000-00498-1.

Analog V.34 Model:
FCC Part 68
Compliance
Statement

This equipment complies with Part 68 of the FCC rules concerning:

■ FCC Registration Number: labeled on the board
■ Facility Interface Code: 02LS2
■ Service Order Code: 9.OF
■ USOC Jack: RJ11C
■ REN: 0.4B
■ Equipment Jack: CA-A11

Canadian
Installations

NOTICE: The Industry Canada label identifies certified equipment. This certification means that the equipment meets telecommunications network protective, operational and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirements document(s). The Department does not guarantee the equipment will operate to the user's satisfaction. Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to

this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment. Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

BRI U Model

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the radio interference regulations of Industry Canada (formerly the Canadian Department of Communications).

Le present appareil numerique níemet pas de bruits radioelectriques depassant les limites applicables aux appareils numeriques de la classe A prescrites dans le Reglement sur le brouillage radioelectrique edicte par líIndustrie Canada (anterieurement le ministre des Communications).

Other Specifications

Safety The RAS 1500 is categorized as a Class 1 LED Device.

Physical Dimensions The RAS 1500 has the following physical dimensions:

Length:	35.56 cm	(14.0 in.)
Width:	43.18 cm	(17.0 in.)
Height:	4.445 cm	(1.75 in.)

Interfaces **Console Interface**

- Electrical specification: RS-232-C (EIA/TIA-232-E standard)
- Connector: DB-9 male
- Configuration: DTE
- Transmission method: Unbalanced RS-232
- Transmission rate: 38.4 Kbps

LAN Interface

- Data Transfer Rate: 10 Mbps
- Accessing Scheme: CSMA/CD (Carrier Sense Multiple Access with Collision Detection)
- Topology: Star Wired hub (using multiport repeater)
- Maximum Nodes: Limited only by repeater used
- Transmission Medium: Unshielded Twisted Pair (UTP)
- Network Lobe Distance: 100 m (328 ft) suggested maximum. Longer cabling may be used at the expense of reduced receiver squelch levels.
- Connector: RJ-45 8-position modular jack, Stewart 88-360808 or equivalent
- Wire Type: 10 Mbps: CAT 3 or CAT 5 twisted pairs 100 Mbps: CAT 5 twisted pairs

WAN Interface - Cabling Specifications

- Max. Cable Distance: 100 meters (328 ft.) suggested maximum. Longer cabling may be used at the expense of reduced receiver squelch levels.
- Cable Loss: Must be £ 11.5 dB/100 m for frequency range of 5–10 MHz

- Characteristic Impedance: 85–111 Ohms for frequency range of 5–10 MHz
- Propagation Delay: 5.7 nanseconds/meter
- Cabling: RJ-45 plug to RJ-45 plug straight-through for multiport repeater applications (transmit to receiver crossover cable for two-node network).

STACKNET

- Electrical specification: N/A
- Connector: IEEE P1394
- Configuration: N/A
- Transmission method: HSSB (High Speed Serial Bus)
- Transmission rate: N/A

Environmental

- Shipping and Storage Temperature: -20° C to 60° C, -4° F to 140° F
- Shipping and Storage Relative Humidity: 0 – 95%, non-condensing
- Operating Temperature: 0° C to 40° C, 32° F to 104° F
- Maximum Rated Ambient Temperature: 40° C, 104° C
- Operating Relative Humidity: 0 – 95%, non-condensing

Power Requirements
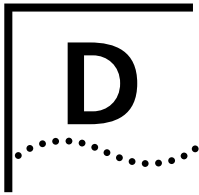
Voltage (VDC)	Maximum Current (A)	Maximum Power Output (W)
12	1.5	30
5	12 *	35
3.3	10 *	33

The 5 and 3.3 VDC outputs "power-share." Since the maximum power output of the 12 VDC supply is 30 W, the remaining 40 W is shared between the 3.3 and 5 VDC supplies. If no load in 3.3 V and 12 V limited to 0.6 A, then 5 V can deliver 12 A.

Input Voltage: 100 - 240 VAC, 50/60 Hz

Maximum Input Current: 1.5 A

D

3COM LIMITED WARRANTY

SuperStack II Remote Access System 1500

HARDWARE	3Com warrants this hardware product to be free from defects in workmanship and materials, under normal use and service, for the following length of time from the date of purchase from 3Com or its authorized reseller:
	Five (5) years
	3Com's sole obligation under this express warranty shall be, at 3Com's option and expense, to repair the defective product or part, deliver to Customer an equivalent product or part to replace the defective item, or if neither of the two foregoing options is reasonably available, 3Com may, in its sole discretion, refund to Customer the purchase price paid for the defective product. All products that are replaced will become the property of 3Com. Replacement products may be new or reconditioned. 3Com warrants any replaced or repaired product or part for ninety (90) days from shipment, or the remainder of the initial warranty period, whichever is longer.
SOFTWARE	3Com warrants that each software program licensed from it will perform in substantial conformance to its program specifications, for a period of ninety (90) days from the date of purchase from 3Com or its authorized reseller. 3Com warrants the media containing software against failure during the warranty period. Free software upgrades are provided for a period of ninety (90) days from the date of purchase from 3Com or its authorized reseller. 3Com's sole obligation under this express warranty shall be, at 3Com's option and expense, to refund the purchase price paid by Customer for any defective software product, or to replace any defective media with software which substantially conforms to applicable 3Com published specifications. Customer assumes responsibility for the selection of the appropriate applications program and associated reference materials. 3Com makes no warranty or representation that its software products will meet Customer's requirements or work in combination with any hardware or applications software products provided by third parties, that the operation of the software products will be uninterrupted or error free, or that all defects in the software products will be corrected. For any third party products listed in the 3Com software product documentation or specifications as being compatible, 3Com will make reasonable efforts to provide compatibility, except where the non-compatibility is caused by a "bug" or defect in the third party's product or from use of the software product not in accordance with 3Com's published specifications or user manual.
YEAR 2000 WARRANTY	In addition to the Hardware Warranty and Software Warranty stated above, 3Com warrants that each product sold or licensed to Customer on and after January 1, 1998 that is date sensitive will continue performing properly with regard to such date data on and after January 1, 2000, provided that all other products used by Customer in connection or combination with the 3Com product, including hardware, software, and firmware, accurately exchange date data with the 3Com product, with the exception of those products identified at 3Com's Web site, http://www.3com.com/products/yr2000.html, as not meeting this standard. If it appears that any product that is stated to meet this standard does not perform properly with regard to such date data on and after January 1, 2000, and Customer notifies 3Com before the later of April 1, 2000, or ninety (90) days after purchase of the product from 3Com or its authorized reseller, 3Com shall, at its option and expense, provide a software update which would effect the proper performance of such product, repair such product, deliver to Customer an equivalent product to replace such product, or if none of the foregoing is feasible, refund to Customer the purchase price paid for such product.
	Any software update or replaced or repaired product will carry a Year 2000 Warranty for ninety (90) days after purchase or until April 1, 2000, whichever is later.

OBTAINING WARRANTY SERVICE

Customer must contact a 3Com Corporate Service Center or an Authorized 3Com Service Center within the applicable warranty period to obtain warranty service authorization. Dated proof of purchase from 3Com or its authorized reseller may be required. Products returned to 3Com's Corporate Service Center must be pre-authorized by 3Com with a Return Material Authorization (RMA) number marked on the outside of the package, and sent prepaid and packaged appropriately for safe shipment, and it is recommended that they be insured or sent by a method that provides for tracking of the package. The repaired or replaced item will be shipped to Customer, at 3Com's expense, not later than thirty (30) days after 3Com receives the defective product.

Dead- or Defective-on-Arrival. In the event a product completely fails to function or exhibits a defect in materials or workmanship within the first forty-eight (48) hours of installation but no later than thirty (30) days after the date of purchase, and this is verified by 3Com, it will be considered dead- or defective-on-arrival (DOA) and a replacement shall be provided by advance replacement. The replacement product will normally be shipped not later than three (3) business days after 3Com's verification of the DOA product, but may be delayed due to export or import procedures. When an advance replacement is provided and Customer fails to return the original product to 3Com within fifteen (15) days after shipment of the replacement, 3Com will charge Customer for the replacement product, at list price.

3Com shall not be responsible for any software, firmware, information, or memory data of Customer contained in, stored on, or integrated with any products returned to 3Com for repair, whether under warranty or not.

Telephone Support, with coverage for basic troubleshooting only, will be provided for ninety (90) days, on a commercially reasonable efforts basis. Telephone support from 3Com is available from 3Com only if Customer purchased this product directly from 3Com, or if Customer's reseller is unable to provide telephone support. Please refer to the Technical Support appendix in the user guide for telephone numbers.

WARRANTIES EXCLUSIVE

IF A 3COM PRODUCT DOES NOT OPERATE AS WARRANTED ABOVE, CUSTOMER'S SOLE REMEDY FOR BREACH OF THAT WARRANTY SHALL BE REPAIR, REPLACEMENT, OR REFUND OF THE PURCHASE PRICE PAID, AT 3COM'S OPTION. TO THE FULL EXTENT ALLOWED BY LAW, THE FOREGOING WARRANTIES AND REMEDIES ARE EXCLUSIVE AND ARE IN LIEU OF ALL OTHER WARRANTIES, TERMS, OR CONDITIONS, EXPRESS OR IMPLIED, EITHER IN FACT OR BY OPERATION OF LAW, STATUTORY OR OTHERWISE, INCLUDING WARRANTIES, TERMS, OR CONDITIONS OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, SATISFACTORY QUALITY, CORRESPONDENCE WITH DESCRIPTION, AND NON-INFRINGEMENT, ALL OF WHICH ARE EXPRESSLY DISCLAIMED. 3COM NEITHER ASSUMES NOR AUTHORIZES ANY OTHER PERSON TO ASSUME FOR IT ANY OTHER LIABILITY IN CONNECTION WITH THE SALE, INSTALLATION, MAINTENANCE OR USE OF ITS PRODUCTS.

3COM SHALL NOT BE LIABLE UNDER THIS WARRANTY IF ITS TESTING AND EXAMINATION DISCLOSE THAT THE ALLEGED DEFECT OR MALFUNCTION IN THE PRODUCT DOES NOT EXIST OR WAS CAUSED BY CUSTOMER'S OR ANY THIRD PERSON'S MISUSE, NEGLECT, IMPROPER INSTALLATION OR TESTING, UNAUTHORIZED ATTEMPTS TO OPEN, REPAIR OR MODIFY THE PRODUCT, OR ANY OTHER CAUSE BEYOND THE RANGE OF THE INTENDED USE, OR BY ACCIDENT, FIRE, LIGHTNING, OTHER HAZARDS, OR ACTS OF GOD.

LIMITATION OF LIABILITY

TO THE FULL EXTENT ALLOWED BY LAW, 3COM ALSO EXCLUDES FOR ITSELF AND ITS SUPPLIERS ANY LIABILITY, WHETHER BASED IN CONTRACT OR TORT (INCLUDING NEGLIGENCE), FOR INCIDENTAL, CONSEQUENTIAL, INDIRECT, SPECIAL, OR PUNITIVE DAMAGES OF ANY KIND, OR FOR LOSS OF REVENUE OR PROFITS, LOSS OF BUSINESS, LOSS OF INFORMATION OR DATA, OR OTHER FINANCIAL LOSS ARISING OUT OF OR IN CONNECTION WITH THE SALE, INSTALLATION, MAINTENANCE, USE, PERFORMANCE, FAILURE, OR INTERRUPTION OF ITS PRODUCTS, EVEN IF 3COM OR ITS AUTHORIZED RESELLER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, AND LIMITS ITS LIABILITY TO REPAIR, REPLACEMENT, OR REFUND OF THE PURCHASE PRICE PAID, AT 3COM'S OPTION. THIS DISCLAIMER OF LIABILITY FOR DAMAGES WILL NOT BE AFFECTED IF ANY REMEDY PROVIDED HEREIN SHALL FAIL OF ITS ESSENTIAL PURPOSE.

DISCLAIMER

Some countries, states, or provinces do not allow the exclusion or limitation of implied warranties or the limitation of incidental or consequential damages for certain products supplied to consumers, or the limitation of liability for personal injury, so the above limitations and exclusions may be limited in their application to you. When the implied warranties are not allowed to be excluded in their entirety, they will be limited to the duration of the applicable written warranty. This warranty gives you specific legal rights which may vary depending on local law.

GOVERNING LAW

This Limited Warranty shall be governed by the laws of the State of California, U.S.A. excluding its conflicts of laws principles and excluding the United Nations Convention on Contracts for the International Sale of Goods.

3Com Corporation
5400 Bayfront Plaza
Santa Clara, CA 95054 USA
(408) 326-5000

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TECHNICAL SUPPORT

3Com provides easy access to technical support information through a variety of services. This appendix describes these services.

Information contained in this appendix is correct at time of publication. For the very latest, 3Com recommends that you access the 3Com Corporation World Wide Web site.

Online Technical Services

3Com offers worldwide product support 24 hours a day, 7 days a week, through the following online systems:

- World Wide Web site
- 3Com FTP site
- 3Com Bulletin Board Service (3Com BBS)
- 3ComFacts℠ automated fax service

World Wide Web Site

Access the latest networking information on the 3Com Corporation World Wide Web site by entering the URL into your Internet browser:

http://www.support.3Com.Com

This service provides access to online support information such as technical documentation and software library, as well as support options ranging from technical education to maintenance and professional services.

3Com FTP Site

Download drivers, patches, software, and MIBs across the Internet from the 3Com public FTP site. This service is available 24 hours a day, 7 days a week.

To connect to the 3Com FTP site, enter the following information into your FTP client:

- Hostname: **ftp.3com.com** (or **192.156.136.12**)

- Username: **anonymous**

- Password: **<your Internet e-mail address>**

i *A user name and password are not needed with Web browser software such as Netscape Navigator and Internet Explorer.*

3Com Bulletin Board Service

The 3Com BBS contains patches, software, and drivers for 3Com products. This service is available through analog modem or digital modem (ISDN) 24 hours a day, 7 days a week.

Access by Analog Modem

To reach the service by modem, set your modem to 8 data bits, no parity, and 1 stop bit. Call the telephone number nearest you:

Country	Data Rate	Telephone Number
Australia	Up to 14,400 bps	61 2 9955 2073
Brazil	Up to 14,400 bps	55 11 5181 9666
France	Up to 14,400 bps	33 1 6986 6954
Germany	Up to 28,800 bps	4989 62732 188
Hong Kong	Up to 14,400 bps	852 2537 5601
Italy	Up to 14,400 bps	39 2 27300680
Japan	Up to 14,400 bps	81 3 3345 7266
Mexico	Up to 28,800 bps	52 5 520 7835
P.R. of China	Up to 14,400 bps	86 10 684 92351
Taiwan, R.O.C.	Up to 14,400 bps	886 2 377 5840
U.K.	Up to 28,800 bps	44 1442 438278
U.S.A.	Up to 53,333 bps	1 847 262 6000

Access by Digital Modem

ISDN users can dial in to the 3Com BBS using a digital modem for fast access up to 64 Kbps. To access the 3Com BBS using ISDN, use the following number:

1 847 262 6000

3ComFacts Automated Fax Service
The 3ComFacts automated fax service provides technical articles, diagrams, and troubleshooting instructions on 3Com products 24 hours a day, 7 days a week.

Call 3ComFacts using your Touch-Tone telephone:

1 408 727 7021

Support from Your Network Supplier

If additional assistance is required, contact your network supplier. Many suppliers are authorized 3Com service partners who are qualified to provide a variety of services, including network planning, installation, hardware maintenance, application training, and support services.

When you contact your network supplier for assistance, have the following information ready:

- Product model name, part number, and serial number
- A list of system hardware and software, including revision levels
- Diagnostic error messages
- Details about recent configuration changes, if applicable

If you are unable to contact your network supplier, see the following section on how to contact 3Com.

Support from 3Com

If you are unable to obtain assistance from the 3Com online technical resources or from your network supplier, 3Com offers technical telephone support services. To find out more about your support options, please call the 3Com technical telephone support phone number at the location nearest you.

When you contact 3Com for assistance, have the following information ready:

- Product model name, part number, and serial number
- A list of system hardware and software, including revision levels
- Diagnostic error messages
- Details about recent configuration changes, if applicable

Below is a list of worldwide technical telephone support numbers:

Country	Telephone Number	Country	Telephone Number
Asia Pacific Rim			
Australia	1 800 678 515	P.R. of China	10800 61 00137 or
Hong Kong	800 933 486		021 6350 1590
India	61 2 9937 5085	Singapore	800 6161 463
Indonesia	001 800 61 009	S. Korea	
Japan	0031 61 6439	From anywhere in S. Korea:	82 2 3455 6455
Malaysia	1800 801 777	From Seoul:	00798 611 2230
New Zealand	0800 446 398	Taiwan, R.O.C.	0080 611 261
Pakistan	61 2 9937 5085	Thailand	001 800 611 2000
Philippines	1235 61 266 2602		

Europe			
From anywhere in Europe, call:	+31 (0)30 6029900 phone		
	+31 (0)30 6029999 fax		

From the following European countries, you may use the toll-free numbers:

Country	Telephone Number	Country	Telephone Number
Austria	06 607468	Netherlands	0800 0227788
Belgium	0800 71429	Norway	800 11376
Denmark	800 17309	Poland	0800 3111206
Finland	0800 113153	Portugal	05 05313416
France	0800 917959	South Africa	0800 995014
Germany	0130 821502	Spain	900 983125
Hungary	00800 12813	Sweden	020 795482
Ireland	1 800 553117	Switzerland	0800 55 3072
Israel	177 3103794	U.K.	0800 966197
Italy	1678 79489		

Latin America			
Argentina	AT&T +800 666 5065	Mexico	01 800 CARE (01 800 2273)
Brazil	0800 13 3266	Peru	AT&T +800 666 5065
Chile	1230 020 0645	Puerto Rico	800 666 5065
Colombia	98012 2127	Venezuela	AT&T +800 666 5065

North America	1 800 NET 3Com		
	(1 800 638 3266)		

Returning Products for Repair

Before you send a product directly to 3Com for repair, you must first obtain a Return Materials Authorization (RMA) number. Products sent to 3Com without RMA numbers will be returned to the sender unopened, at the sender's expense.

To obtain an RMA number, call or fax:

Country	Telephone Number	Fax Number
Asia, Pacific Rim	65 543 6500	65 543 6348
Europe, South Africa, and Middle East	+ 44 1442 435860	+ 44 1442 435718

From the following European countries, you may call the toll-free numbers; select option 2 and then option 2:

Austria	06 607468
Belgium	0800 71429
Denmark	800 17309
Finland	0800 113153
France	0800 917959
Germany	0130 821502
Hungary	00800 12813
Ireland	1800553117
Israel	177 3103794
Italy	1678 79489
Netherlands	0800 0227788
Norway	800 11376
Poland	00800 3111206
Portugal	05 05313416
South Africa	0800 995014
Spain	900 983125
Sweden	020 795482
Switzerland	0800 55 3072
U.K.	0800 966197

Country	Telephone Number	Fax Number
Latin America	1 408 326 2927	1 408 326 3355
U.S.A. and Canada	1 800 NET 3Com (1 800 638 3266)	1 408 326 7120

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